McIntosh
09/967183

FILE 'REGISTRY' ENTERED AT 14:59:12 ON 11 SEP 2002
L1 8 S (BETAINE OR ERYTHRITOL OR INOSITOL OR SUCROSE OR MANNIT
L2 1 S DIVINYLBENZENE/CN

FILE 'HCAPLUS' ENTERED AT 14:59:46 ON 11 SEP 2002
L1 8 SEA FILE=REGISTRY ABB=ON PLU=ON (BETAINE OR ERYTHRITOL OR INOSITOL OR SUCROSE OR MANNITOL OR GLYCEROL)/CN
L2 1 SEA FILE=REGISTRY ABB=ON PLU=ON DIVINYLBENZENE/CN
L3 25618 SEA FILE=HCAPLUS ABB=ON PLU=ON L2 OR DIVINYLBENZENE OR DVB OR DI(W)(VINYLBENZENE OR VINYL(W)(BZ OR BENZENE)) OR DIVINYL(W)(BZ OR BENZENE)
L4 2537 SEA FILE=HCAPLUS ABB=ON PLU=ON L3 AND (L1 OR BETAINE OR ERYTHRITOL OR INOSITOL OR SUCROSE OR MANNITOL OR GLYCEROL OR MYOINOSITOL OR GLYCERIN OR AMINO OR PROTEIN OR POLYPROTEIN OR PEPTIDE OR POLYPEPTIDE)
L5 544 SEA FILE=HCAPLUS ABB=ON PLU=ON L4 AND CHROMATOG?
L6 15 SEA FILE=HCAPLUS ABB=ON PLU=ON L5 AND (BEET OR VINASSE OR MOLASSES)

L6 ANSWER 1 OF 15 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 2002:256523 HCAPLUS
DOCUMENT NUMBER: 136:296457
TITLE: Multistep process for recovering **betaine**, **erythritol**, **inositol**, **sucrose**, **mannitol**, **glycerol** and **amino** acids by using weakly acidic cation exchange resin in column
INVENTOR(S): Paananen, Hannu; Kuisma, Jarmo; Ravanko, Vili; Maeyrae, Nina; Heikkilae, Heikki; Lewandowski, Jari
PATENT ASSIGNEE(S): Finnfeeds Finland Oy, Finland
SOURCE: PCT Int. Appl., 27 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002027037	A1	20020404	WO 2001-FI849	20010928

W: AE, AG, AL, AM, AT, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, CZ, DE, DE, DK, DK, DM, DZ, EC, EE, EE, ES, FI, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

FI 2000002150 A 20020330 FI 2000-2150 20000929
PRIORITY APPLN. INFO.: FI 2000-2150 A 20000929
AB A method comprising a multistep process for recovering .gtoreq.1 products from a soln. contg. .gtoreq.1 components selected from **betaine**, **erythritol**, **inositol**,

Searcher : Shears 308-4994

sucrose, mannitol, glycerol and/or **amino** acids from corresponding starting materials, (esp. contg. **beet molasses, betaine molasses**, syrups, thick juices, raw juices, corn steep cane-based solns. and/or **glycerol**) by using **chromatog.** sepn., wherein a weakly acidic cation exchange resin is used in **chromatog.** column.

IT **1321-74-0D, Divinylbenzene**, acrylic polymers crosslinked with
RL: NUU (Other use, unclassified); USES (Uses)
(cation exchangers; multistep process for recovering **betaine, erythritol, inositol, sucrose, mannitol, glycerol** and **amino** acids by using weakly acid cation exchange resin in column)

IT **56-81-5P, Glycerol**, preparation **57-50-1P, Sucrose**, preparation **69-65-8P, Mannitol 87-89-8P, Inositol 149-32-6P, Erythritol**
RL: PEP (Physical, engineering or chemical process); PUR (Purification or recovery); PYP (Physical process); PREP (Preparation); PROC (Process)
(multistep process for recovering **betaine, erythritol, inositol, sucrose, mannitol, glycerol** and **amino** acids by using weakly acid cation exchange resin in column)

IT **107-43-7P, Betaine**
RL: PEP (Physical, engineering or chemical process); PUR (Purification or recovery); PYP (Physical process); PREP (Preparation); PROC (Process)
(multistep process for recovering **betaine, erythritol, inositol, sucrose, mannitol, glycerol** and **amino** acids by using weakly acidic cation exchange resin in column)

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 2 OF 15 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 2001:310467 HCAPLUS
DOCUMENT NUMBER: 134:313169
TITLE: Method for fractionating a solution
INVENTOR(S): Heikkila, Heikki; Hyoky, Goran; Kuisma, Jarmo; Paananen, Hannu
PATENT ASSIGNEE(S): Cultor Corporation, Finland
SOURCE: U.S., 14 pp., Cont.-in-part of U.S. Ser. No. 862,613, abandoned.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6224776	B1	20010501	US 1999-248089	19990210
US 2001009236	A1	20010726	US 2001-794651	20010227

PRIORITY APPLN. INFO.: FI 1996-2204 A 19960524

Searcher : Shears 308-4994

US 1997-861613 B2 19970522
US 1999-248089 A1 19990210

AB In a method for fractionating a soln. into two or more fractions by a **chromatog**. simulated moving bed (SMB) process, the sepn. system comprises at least two sepn. profiles in the same loop.

IT **56-81-5P, Glycerol**, preparation **87-78-5P, Mannitol 87-89-8P, Inositol 107-43-7P, Betaine 149-32-6P, Erythritol**
RL: PUR (Purification or recovery); PREP (Preparation)
(method for fractionating soln.)

REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 3 OF 15 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 2001:25674 HCAPLUS
DOCUMENT NUMBER: 134:70658
TITLE: Production of isoflavone enriched fractions from soy **protein** extracts
INVENTOR(S): Gugger, Eric; Grabiel, Richard
PATENT ASSIGNEE(S): Archer Daniels Midland Company, USA
SOURCE: U.S., 15 pp., Cont.-in-part of U. S. 6,033,714.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 5
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6171638	B1	20010109	US 2000-478751	20000106
US 5702752	A	19971230	US 1996-614545	19960313
IL 130611	A1	20010430	IL 1997-130611	19970310
US 5792503	A	19980811	US 1997-868629	19970604
US 6033714	A	20000307	US 1998-35588	19980305

PRIORITY APPLN. INFO.: US 1996-614545 A3 19960313
US 1997-868629 A2 19970604
US 1998-35588 A2 19980305
IL 1997-120409 A3 19970310

AB The temp. sensitive differential of the solubilities of various isoflavone fractions is used to initially sep. the fractions by heating an aq. soy **molasses** or soy whey feed stream. The temp. of the feed stream is selected according to the temp. at which a desired isoflavone fraction or fractions become sol. Then, the heated feed stream is passed through an ultrafiltration membrane or reverse osmosis in order to conc. the solids. The resulting permeate is put through a resin adsorption process carried out in at least one liq. **chromatog**. column to further sep. the desired isoflavone fractions. Various processes are described for drying and crystg. the isoflavone fractions to a powder. A solvent is then added to the isoflavone fraction to dissolve impurities and rehydrate the dry powder. Usually, the rehydrated isoflavone is used as an additive to a food ingredient or food product. At various points in the process a selected amt. of isoflavones may or may not be blended with the powder in order to bring the isoflavone to a desired characteristic specification or to produce a food ingredient or food product.

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 4 OF 15 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1998:580089 HCAPLUS
DOCUMENT NUMBER: 129:232251
TITLE: Purification of sugar **beet** juices by **chromatography** and demineralization using strong anion exchangers
INVENTOR(S): Furusho, Saburo; Kono, Norio
PATENT ASSIGNEE(S): Nippon Rensui K. K., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 10229900	A2	19980902	JP 1997-46896	19970217

AB The process, providing sugar **beet** juices with extremely low **betaine** concn., comprises removing suspended solids and polyvalent ions from sugar **beet** juices; purifying the juices by **chromatog.** with water eluents; and passing through strongly acidic cation exchangers and strongly basic anion exchangers. Thus, a sugar **beet** juice was processed with Ca(OH)2, blown with CO2(g), successively passed through a strongly acidic cation exchanger, and an anion exchanger to give a purified sugar **beet** juice.

L6 ANSWER 5 OF 15 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1998:184184 HCAPLUS
DOCUMENT NUMBER: 128:218561
TITLE: Manufacture of **sucrose** and raffinose-containing **sucrose** from sugar **beet** extract
INVENTOR(S): Tanimura, Masatake; Tamura, Tsuneo; Hashimoto, Yasuaki
PATENT ASSIGNEE(S): Mitsubishi Kasei Engineering K. K., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 10075799	A2	19980324	JP 1996-234244	19960904

AB The process comprises (1) prepurifn. by removal of suspensoids and polyvalent cations from the ext., (2) **chromatog.** sepn. to give solns. with reduced raffinose/**sucrose** ratio having anion content 200-1500 mg-CaCO3/L, cation content 500-2500 mg-CaCO3/L, and color value .ltoreq.17 at 420 nm by supplying the prepurified solns. to **chromatog.** app. at .gtoreq.60.degree. with H2O as an eluent after condensed, (3)

desalination by applying the resulting solns. to at least strongly acidic cation exchange resin and basic anion exchange resin at .ltoreq.10.degree., (4) decoloration by applying the resulting solns. to porous strongly basic anion exchange resin at .gtoreq.50.degree., (5) crystn. and sepn. of **sucrose** by condensation of the resulting solns., and (6) condensation of the solns. sepd. from the crystd. **sucrose** to obtain raffinose-contg. **sucrose**. A Na salt-type styrene-**divinylbenzene** copolymer-based strongly acidic cation exchanger was used for the **chromatog**. sepn. of sugar **beet** ext. prepurified by addn. of Ca(OH)2 and CO2.

IT **57-50-1P, Sucrose**, preparation
RL: PUR (Purification or recovery); PREP (Preparation)
(manuf. of **sucrose** and raffinose-contg. **sucrose** from sugar **beet** ext.)

L6 ANSWER 6 OF 15 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1992:614866 HCAPLUS
DOCUMENT NUMBER: 117:214866
TITLE: Study of exclusion equilibrium between a **sucrose**-sodium chloride solution and an ion exchange resin
AUTHOR(S): Lewandowski, R.; Lameloise, M. L.
CORPORATE SOURCE: Ec. Natl. Super. Ind. Agric. Aliment., Massy, 91305, Fr.
SOURCE: Chem. Eng. Process. (1992), 31(4), 207-11
CODEN: CENPEU; ISSN: 0255-2701
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Ion-exclusion **chromatog**. of sugar factory **molasses** was used to recover sugar. Process design and modeling needed capacity data. A soln. contg. **sucrose** and NaCl at high concns., and a strong cationic resin under Na+ form were chosen as a model system. Equil. isotherms were investigated at 70.degree. by frontal anal. on a resin column, on single components and mixts. Combination of both components affected the single component equil. data. A simple equation was proposed to represent binary equil. isotherms.

IT **57-50-1, Sucrose**, analysis
RL: ANST (Analytical study)
(ion-exclusion **chromatog**. of aq. solns. of sodium chloride and)

L6 ANSWER 7 OF 15 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1986:554996 HCAPLUS
DOCUMENT NUMBER: 105:154996
TITLE: Selection of cation-exchange resin for the **chromatographic** isolation of **molasses** components
AUTHOR(S): Kambarova, R. F.; Kasakova, N. B.; Chikin, G. A.; Shamritskaya, I. P.; Boryakov, S. G.
CORPORATE SOURCE: Voronezh. Univ., Voronezh, USSR
SOURCE: Izv. Vyssh. Uchebn. Zaved., Pishch. Tekhnol. (1986), (3), 24-6
CODEN: IVUPA8; ISSN: 0579-3009
DOCUMENT TYPE: Journal
LANGUAGE: Russian
AB The highest selectivity to **sucrose** [39355-02-7] in

chromatog. fractionation of its aq. solns. contg. NaCl was shown by sulfonated cation-exchange resin gels crosslinked with 4-6% **divinylbenzene**, having narrow particle size distribution and max. ion-exchange capacity, such as KU-2-4 [12656-82-5]. Macroporous cation-exchange resins, such as KU-23-3/100 [104625-19-6], were not selective to **sucrose**. The selectivity of cation-exchange resins was studied to select a stationary phase for **chromatog.** anal. of **molasses**
.

IT **57-50-1**, properties
RL: PRP (Properties)
(selectivity to, of cation-exchange resins, **molasses** **chromatog.** in relation to)

L6 ANSWER 8 OF 15 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1983:52240 HCAPLUS
DOCUMENT NUMBER: 98:52240
TITLE: **Betaine** recovery
INVENTOR(S): Heikkilae, Heikki O.; Melaja, Jaakko A.; Millner, Dan E. D.; Virtanen, Jouko J.
PATENT ASSIGNEE(S): Suomen Sokeri Oy, Finland
SOURCE: U.S., 20 pp. Cont.-in-part of U.S. Ser. No. 125,991, abandoned.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4359430	A	19821116	US 1981-237649	19810224
WO 8102420	A1	19810903	WO 1981-FI14	19810226
W: DK, FI, HU, JP, RO, SU				
RW: AT, CH, DE, FR, GB, LU, NL, SE				
JP 57500286	T2	19820218	JP 1981-500795	19810226
JP 02050895	B4	19901105		
EP 54544	A1	19820630	EP 1981-900580	19810226
EP 54544	B1	19850109		
R: AT, CH, DE, FR, GB, LU, NL, SE				
HU 26148	O	19830928	HU 1981-1534	19810226
HU 184855	B	19841029		
RO 84360	P	19840523	RO 1981-105300	19810226
AT 11132	E	19850115	AT 1981-900580	19810226
ES 499868	A1	19820901	ES 1981-499868	19810227
CS 256365	B2	19880415	CS 1981-1434	19810227
FI 8102912	A	19810917	FI 1981-2912	19810917
FI 77845	B	19890131		
FI 77845	C	19890510		
DK 8104532	A	19811013	DK 1981-4532	19811013
DK 158222	B	19900416		
DK 158222	C	19900924		
SU 1189334	A3	19851030	SU 1981-3351601	19811013

PRIORITY APPLN. INFO.:		
US 1980-125991		19800229
EP 1981-900580		19810226
WO 1981-FI14		19810226

AB **betaine** [107-43-7] May be recovered from **beet molasses** or other plant material by

chromatog. on a cross-linked **divinylbenzene**
-polystyrene resin. Thus, **beet molasses** was
dild. to 39% solids and passed through a sulfonated
divinylbenzene-polystyrene cation-exchange column (Na+ form)
and eluted with water. The **betaine**-contg. fraction
contained 72% of the **betaine** of the whole feed.

IT **107-43-7P**
RL: PREP (Preparation)
(recovery of, from **beet molasses** and
vinasse, by cation-exchange resin)

L6 ANSWER 9 OF 15 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1982:8470 HCAPLUS
DOCUMENT NUMBER: 96:8470
TITLE: Recovery of **betaine**
INVENTOR(S): Heikkilae, H. O.; Millner, D. E. D.; Melaja, J. A.; Virtanen, J. J.
PATENT ASSIGNEE(S): Suomen Sokeri Oy, Finland
SOURCE: Belg., 51 pp.
CODEN: BEXXAL
DOCUMENT TYPE: Patent
LANGUAGE: French
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
BE 887652	A1	19810615	BE 1981-203899	19810224
WO 8102420	A1	19810903	WO 1981-FI14	19810226
W: DK, FI, HU, JP, RO, SU				
RW: AT, CH, DE, FR, GB, LU, NL, SE				
JP 57500286	T2	19820218	JP 1981-500795	19810226
JP 02050895	B4	19901105		
EP 54544	A1	19820630	EP 1981-900580	19810226
EP 54544	B1	19850109		
R: AT, CH, DE, FR, GB, LU, NL, SE				
HU 26148	O	19830928	HU 1981-1534	19810226
HU 184855	B	19841029		
RO 84360	P	19840523	RO 1981-105300	19810226
AT 11132	E	19850115	AT 1981-900580	19810226
ES 499868	A1	19820901	ES 1981-499868	19810227
CS 256365	B2	19880415	CS 1981-1434	19810227
FI 8102912	A	19810917	FI 1981-2912	19810917
FI 77845	B	19890131		
FI 77845	C	19890510		
DK 8104532	A	19811013	DK 1981-4532	19811013
DK 158222	B	19900416		
DK 158222	C	19900924		
SU 1189334	A3	19851030	SU 1981-3351601	19811013

PRIORITY APPLN. INFO.:
US 1980-125991 19800229
EP 1981-900580 19810226
WO 1981-FI14 19810226

AB **betaine** [**107-43-7**] Is recovered from
molasses, esp. sugar **beet molasses**, by
diln. of the **molasses** to 20-50% solids, **chromatog**
. on sulfonated 2-12:98-88 **divinylbenzene**-styrene resin
(I) (particle size 20-400 mesh), and elution with H2O. Thus, a 39%
solids (**sucrose** 62.2, **betaine** 6.9, others 30.9%)

soln. of sugar **beet molasses** is passed at 5.85 m3/h and 82.degree. over a column (height 6.1 m, diam. 2.76 m) of sulfonated 5.5:94.5 I (Na form) and eluted with H2O. The 7th fraction (elution time 140 min) contains 4.6% solids (**sucrose** 5.6, **betaine** 80.6 other 13.8%), representing a 72% recovery of the **betaine** charged.

IT **107-43-7P**
RL: PREP (Preparation)
(isolation of, from sugar **beet molasses** by cation exchange **chromatog.**)

L6 ANSWER 10 OF 15 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1980:542382 HCAPLUS
DOCUMENT NUMBER: 93:142382
TITLE: Device for analysis of acidic substances by high-pressure liquid **chromatography**
INVENTOR(S): Yamada, Tsuyoshi
PATENT ASSIGNEE(S): Showa Denko K. K., Japan
SOURCE: Ger. Offen., 19 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 2948912	A1	19800619	DE 1979-2948912	19791205
DE 2948912	C2	19850314		
JP 55076949	A2	19800610	JP 1978-149917	19781206
JP 57034502	B4	19820723		
US 4290776	A	19810922	US 1980-160647	19800618
PRIORITY APPLN. INFO.:			JP 1978-149917	19781206
			US 1979-98812	19791130

AB A method and a high-pressure liq. **chromatograph** are described for anal. of org. carboxylic acids. The app. consists of a high-pressure pump for supplying the eluent, a column packed with sulfonated styrene-**divinylbenzene** copolymer, and a spectrophotometric detector. Another high-pressure pump is used to supply a sulfophthalein pH indicator to the effluents of the liq. column to allow the spectrophotometric detection of the carboxylic acids. The pH indicator should have a color transition in the 3.0-10.0 pH range. The technique was illustrated by the detection of carboxylic acids in waste **molasses** and anal. of a synthetic mixt. of carboxylic acids. For the anal. of waste **molasses**, bromocresol purple was used as the pH indicator and the column was packed with Shodex Ionpak C-811. Aq. soln. of HClO4 was used as the eluent.

IT **57-50-1**, analysis
RL: ANT (Analyte); ANST (Analytical study)
(detection of, in waste **molasses** by high-pressure liq. **chromatog.**, pH indicators for spectrophotometric)

L6 ANSWER 11 OF 15 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1976:496082 HCAPLUS
DOCUMENT NUMBER: 85:96082
TITLE: Separating sugar from **molasses**
PATENT ASSIGNEE(S): Sueddeutsche Zucker A.-G., Fed. Rep. Ger.

SOURCE: Belg., 17 pp. Addn. to Belg. 823,320.
CODEN: BEXXAL
DOCUMENT TYPE: Patent
LANGUAGE: French
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
BE 828541	A4	19751029	BE 1975-155909	19750429
DE 2511904	A1	19760923	DE 1975-2511904	19750319
DE 2511904	B2	19790913		
DE 2511904	C3	19800522		
DK 7501868	A	19760920	DK 1975-1868	19750429
NL 7505104	A	19760921	NL 1975-5104	19750429
FR 2304673	A2	19761015	FR 1975-13442	19750429
FR 2304673	B2	19781027		
GB 1503815	A	19780315	GB 1975-17724	19750429

PRIORITY APPLN. INFO.: DE 1975-2511904 19750319

AB Sugar and nonsugars were sepd. from **molasses** by liq. partition **chromatog.** of the **molasses** on 3 successive columns contg. cation exchangers in the Ca form in the ratio 25-45 vol.% in each column. Thus, 3 columns, diam. 1 m and height 5.7 m were packed with 13.4 m3 each of vinyl polymer cation exchanger crosslinked with 4% **divinylbenzene** and contg. sulfonic acid groups in the Ca form. A 50% solids **molasses** soln. (580 l.) with purity 61% was pumped onto the 1st column at 90.degree., eluted with decarbonated water at pH >9 and successively treated in the same way on the 2nd and 3rd columns to give 97.7% recovery of sugar with 92.2% purity and 89.5% sepn. of nonsugars from the **molasses**.

IT **57-50-1P**, preparation
RL: PREP (Preparation)
(sepn. of nonsugars and, from **molasses**, by cation exchangers)

L6 ANSWER 12 OF 15 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1975:481779 HCAPLUS
DOCUMENT NUMBER: 83:81779
TITLE: Separation of sugars from **molasses** solutions
INVENTOR(S): Munir, Mohammad; Schiweck, Hubert; Weinz, Hans W.; Wurm, Fritz
PATENT ASSIGNEE(S): Sueddeutsche Zucker-A.-G., Ger.
SOURCE: Ger. Offen., 16 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 2362211	A1	19750619	DE 1973-2362211	19731214
DE 2362211	B2	19760122		
US 3975205	A	19760817	US 1974-527799	19741127
IN 140210	A	19760925	IN 1974-CA2693	19741205
HU 170337	P	19770528	HU 1974-SU882	19741206

AU 7476250	A1	19760610	AU 1974-76250	19741210
NL 7416136	A	19750617	NL 1974-16136	19741211
JP 50094145	A2	19750726	JP 1974-141641	19741211
JP 57019959	B4	19820426		
SU 549088	D	19770228	SU 1974-2083397	19741211
IT 1024418	A	19780620	IT 1974-54493	19741211
RO 76618	P	19810430	RO 1974-80758	19741211
FI 7403582	A	19750615	FI 1974-3582	19741212
FI 57784	B	19800630		
FI 57784	C	19801010		
SE 7415619	A	19750616	SE 1974-15619	19741212
GB 1448524	A	19760908	GB 1974-53750	19741212
AT 7409914	A	19760915	AT 1974-9914	19741212
AT 337122	B	19770610		
PL 101202	P	19781230	PL 1974-176410	19741212
BE 823320	A1	19750613	BE 1974-151475	19741213
DK 7406526	A	19750818	DK 1974-6526	19741213
FR 2272174	A1	19751219	FR 1974-41227	19741213
FR 2272174	B1	19800222		
ZA 7407957	A	19760128	ZA 1974-7957	19741213
ES 432902	A1	19761101	ES 1974-432902	19741213
CH 606439	A	19781031	CH 1974-16632	19741213

PRIORITY APPLN. INFO.: DE 1973-2362211 19731214

AB A process was described for sepg. the sugars and nonsugars from **molasses** by liq. distribution **chromatog.** at 85-95.degree. using cation exchanger in the Ca form and eluting with the decarbonated H2O at pH >9. Thus, columns contg. 4% **divinylbenzene**-crosslinked microporous resin wtih Ca sulfonate group were fed with **molasses** soln. (solid matter 50% and purity 61%) at 90.degree. by 3.4 cm/min rate, eluted with decarbonated H2O to give sugar-contg. fraction with av. 0.186 vol. ratio, 10.2% solid matter, 91.9% purity, and in 96.8% sugar yield after 9 cycles.

IT **57-50-1P**, preparation
RL: PREP (Preparation)
(sepn. of, from **molasses**, by cation exchange)

L6 ANSWER 13 OF 15 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1968:437301 HCAPLUS
DOCUMENT NUMBER: 69:37301
TITLE: Invert sugars from **molasses**
PATENT ASSIGNEE(S): Boehringer, C. F., und Soehne G.m.b.H.
SOURCE: Brit., 15 pp.
CODEN: BRXXAA
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
GB 1116888		19680612		

PRIORITY APPLN. INFO.: DE 19660315
DE 19661119

AB A process is described in which pure, invert sugar is prepd. from solns. of **molasses** by acid hydrolysis and, with or without neutralization. The products are sepd. by **chromatog.** on a cation-exchange resin in the form of a salt. Thus **molasses**

(270 g.) consisting of **sucrose** (50), glucose (5.3), fructose (6.6), K (3.48), Cl (2.1), and ash (5.9%) is dild. with H2O (170), heated to 80.degree. and, after addn. of 6N HCl (38.3), stirred for 60 min. at 80.degree.. After cooling to 20.degree., the reaction mixt. is neutralized with 8.2N KOH (.apprx.30 cc.), and centrifuged for 1 hr. at 3000 rpm. The soln. is decanted, concd. in vacuo to 370 cc., heated to 90.degree., and then poured through a sepn. app. consisting of 3 200-cm. long and 3.5-cm. diam. interconnected glass tubes, surrounded by a water heater maintained at 90.degree.. Each tube contains as the exchanger unclear-sulfonated polystyrene resin (1500 cc.), crosslinked with **divinylbenzene** (4%). Particle size is from 50 to 100 mesh, and flow velocity is maintained at 10 cc./min. When all of the soln. has passed through the columns, they are eluted with H2O at 90.degree.. The effluent is collected in 90-cc. fractions, and the first 19 of these are discarded. The next 30 fractions are analyzed. About 90% of the invert sugar product has an extinction coeff. below 1 in contrast to above 4 for product from processes without hydrolysis, and only about 4% of the total product is contaminated with nonsugar impurities.

L6 ANSWER 14 OF 15 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1964:10429 HCAPLUS
DOCUMENT NUMBER: 60:10429
ORIGINAL REFERENCE NO.: 60:1913e-h,1914a
TITLE: Estimation of sugars in **beet molasses**. I. II
AUTHOR(S): Carruthers, A.; J. V. Dutton; Oldfield, J. F. T.; Elliott, C. W.; Heaney, R. K.; Teague, H. J.
SOURCE: Intern. Sugar J. (1963), 65(777), 266-70
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable

AB The presence of raffinose (I), galactinol (II), and kestoses (III) in **beet molasses** can cause errors in detg. **sucrose** (IV) concn. by polarimetric methods. To make corrections, I may be detd. by paper **chromatography**. For 7 different **molasses** samples, there was little difference between values for I detd. from **molasses** directly and those obtained after hydrolysis with invertase to convert I to melibiose (De Whalley, CA 46, 7803b) because normally little 6-kestose is present to interfere with mobility of I. With 4 different **molasses** samples, visual comparison of spots with standards gave results quite similar to those obtained by eluting spots and detg. concn. photoelectrically. I and III may be detd. by using ion-exchange resins. Thus, 1 ml. of 20% **molasses** was applied to a column of Dowex 50-W (2% **divinylbenzene** Li+ form), and the column washed and eluted with 0.1% LiOBz at a flow rate of 6-7 ml./hr. Approx. 60 1-ml. fractions were obtained before carbohydrate appeared. The position of individual carbohydrates was detd. by thin-layer **chromatography** on Kieselgel G in MeCOEt, PrOH, and H2O (2:2:1). After irrigation for 90 min., the carbohydrates and standards were developed by spraying with .alpha.-naphthol-H2SO4. I appeared in 8-9 fractions, 1-2 blank fractions appeared, 8-9 fractions contained IV, 1-2 more blanks appeared, and 9-10 fractions contained hexoses. Sepn. of IV from I was adequate, but I contained considerable III and IV contained II. The I fractions were dild. to 25 ml. and the IV fractions to 50 ml. Total carbohydrate in each

fraction was detd. by using anthrone (Fairbairn, CA 47, 4239g). The I fraction was evapd. under reduced pressure to 2 ml. from 20 ml. and 0.2 ml. N HCl added, followed by heating at 70.degree. for 30 min. to hydrolyze I to melibiose and fructose and III to fructose and glucose. The cooled soln. was neutralized and dild. to 5 ml. A 2-ml. aliquot was applied to a column contg. 5 ml. of a 1:1 mixt. of activated charcoal and Celite 545. After 2 washings with 2 ml. H2O, 25 ml. at 1 lb./in.2 was used for the elution of monosaccharides, followed by 25 ml. 10% EtOH which eluted all the melibiose in <90 min. Anthrone was used to det. both melibiose and monosaccharides and thus I and III concns. were calcd. Values of I obtained by using columns agreed closely with those obtained by using paper **chromatography**. Values obtained for III are considered reliable, but no really good method was found for detg. II.

L6 ANSWER 15 OF 15 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 1964:10428 HCAPLUS
DOCUMENT NUMBER: 60:10428
ORIGINAL REFERENCE NO.: 60:1913e-h,1914a
TITLE: Estimation of sugars in **beet molasses**. I. II
AUTHOR(S): Carruthers, A.; J. V. Dutton; Oldfield, J. F. T.; Elliott, C. W.; Heaney, R. K.; Teague, H. J.
SOURCE: Intern. Sugar J. (1963), 65(776), 234-7
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
AB The presence of raffinose (I), galactinol (II), and kestoses (III) in **beet molasses** can cause errors in detg. **sucrose** (IV) concn. by polarimetric methods. To make corrections, I may be detd. by paper **chromatography**. For 7 different **molasses** samples, there was little difference between values for I detd. from **molasses** directly and those obtained after hydrolysis with invertase to convert I to melibiose (De Whalley, CA 46, 7803b) because normally little 6-kestose is present to interfere with mobility of I. With 4 different **molasses** samples, visual comparison of spots with standards gave results quite similar to those obtained by eluting spots and detg. concn. photoelectrically. I and III may be detd. by using ion-exchange resins. Thus, 1 ml. of 20% **molasses** was applied to a column of Dowex 50-W (2% **divinylbenzene** Li+ form), and the column washed and eluted with 0.1% LiOBz at a flow rate of 6-7 ml./hr. Approx. 60 1-ml. fractions were obtained before carbohydrate appeared. The position of individual carbohydrates was detd. by thin-layer **chromatography** on Kieselgel G in MeCOEt, PrOH, and H2O (2:2:1). After irrigation for 90 min., the carbohydrates and standards were developed by spraying with .alpha.-naphthol-H2SO4. I appeared in 8-9 fractions, 1-2 blank fractions appeared, 8-9 fractions contained IV, 1-2 more blanks appeared, and 9-10 fractions contained hexoses. Sepn. of IV from I was adequate, but I contained considerable III and IV contained II. The I fractions were dild. to 25 ml. and the IV fractions to 50 ml. Total carbohydrate in each fraction was detd. by using anthrone (Fairbairn, CA 47, 4239g). The I fraction was evapd. under reduced pressure to 2 ml. from 20 ml. and 0.2 ml. N HCl added, followed by heating at 70.degree. for 30 min. to hydrolyze I to melibiose and fructose and III to fructose and glucose. The cooled soln. was neutralized and dild. to 5 ml. A 2-ml. aliquot was applied to a column contg. 5 ml. of a 1:1 mixt. of

activated charcoal and Celite 545. After 2 washings with 2 ml. H2O, 25 ml. at 1 lb./in.2 was used for the elution of monosaccharides, followed by 25 ml. 10% EtOH which eluted all the melibiose in <90 min. Anthrone was used to det. both melibiose and monosaccharides and thus I and III concns. were calcd. Values of I obtained by using columns agreed closely with those obtained by using paper **chromatography**. Values obtained for III are considered reliable, but no really good method was found for detg. II.

(FILE 'MEDLINE, BIOSIS, EMBASE, WPIDS, CONFSCI, SCISEARCH, JICST-EPLUS, JAPIO, CABA, AGRICOLA, PROMT' ENTERED AT 15:03:08 ON 11 SEP 2002)

L7 13 S L6

L8 13 DUP REM L7 (0 DUPLICATES REMOVED)

L8 ANSWER 1 OF 13 WPIDS (C) 2002 THOMSON DERWENT

ACCESSION NUMBER: 2002-499869 [53] WPIDS
DOC. NO. CPI: C2002-141503
TITLE: Use of weakly acid cation exchange resin for **chromatographic** separation of carbohydrates.
DERWENT CLASS: A14 A97 D16
INVENTOR(S): HEIKKILAE, H; JUMPPANEN, J; KAERKI, A; MAEYRAE, N; PAANANEN, H; PAATERO, E; RAVANKO, V; TERVALA, T; TIIHONEN, J
PATENT ASSIGNEE(S): (DANI-N) DANISCO SWEETENERS OY; (XYRO-N) XYROFIN OY
COUNTRY COUNT: 97
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 2002027038	A1	20020404	(200253)*	EN	33

RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PH PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

AU 2001091923 A 20020408 (200253)
FI 2000002149 A 20020330 (200253)

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2002027038	A1	WO 2001-FI846	20010928
AU 2001091923	A	AU 2001-91923	20010928
FI 2000002149	A	FI 2000-2149	20000929

FILING DETAILS:

PATENT NO	KIND		PATENT NO
AU 2001091923	A	Based on	WO 200227038

PRIORITY APPLN. INFO: FI 2000-2149 20000929
AN 2002-499869 [53] WPIDS

AB WO 200227038 A UPAB: 20020820
NOVELTY - A weakly acid cation exchange resin is used for **chromatographic** separation of carbohydrates from each other.
USE - For **chromatographic** separation of carbohydrates.
ADVANTAGE - When using weakly acid cation exchange resins, an improved **chromatographic** separation of carbohydrates is accessed.
DESCRIPTION OF DRAWING(S) - The figure is a graphical presentation of the elution profiles and pH obtained from Example 1.
Dwg.1/7

L8 ANSWER 2 OF 13 WPIDS (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: 2002-330102 [36] WPIDS
DOC. NO. CPI: C2002-095535
TITLE: Recovery of **betaine, erythritol, inositol, sucrose, mannitol, glycerol** and/or **amino** acids from a solution, includes **chromatographic** separation that uses weakly acid cation exchange resin.
DERWENT CLASS: D17 E19
INVENTOR(S): HEIKKILAE, H; KUISMA, J; LEWANDOWSKI, J; MAEYRAE, N; PAANANEN, H; RAVANKO, V
PATENT ASSIGNEE(S): (FINN-N) FINNFEEDS FINLAND OY
COUNTRY COUNT: 97
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
WO 2002027037	A1	20020404	(200236)*	EN	27
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW					
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PH PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW					
FI 2000002150	A	20020330	(200240)		
AU 2001089978	A	20020408	(200252)		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2002027037	A1	WO 2001-FI849	20010928
FI 2000002150	A	FI 2000-2150	20000929
AU 2001089978	A	AU 2001-89978	20010928

FILING DETAILS:

PATENT NO	KIND		PATENT NO
AU 2001089978	A	Based on	WO 200227037

PRIORITY APPLN. INFO: FI 2000-2150 20000929
AN 2002-330102 [36] WPIDS
AB WO 200227037 A UPAB: 20020610

NOVELTY - A method for recovering **betaine, erythritol, inositol, sucrose, mannitol, glycerol** and/or **amino** acids from a solution, comprises a multistage process in which **chromatographic** separation comprises at least one step. A weakly acid cation exchange resin is used for the **chromatographic** separation.

USE - The method is used for the recovery of **betaine, erythritol, inositol, sucrose, mannitol, glycerol** and/or **amino** acids from sugar **beet** derived process solutions, preferably **vinasse, beet molasses, betaine molasses** (claimed), cane **molasses**, syrups, thick juices, raw juices, corn steep and cane based solutions.

ADVANTAGE - The method makes it possible to separate and recover products such as **betaine, erythritol, inositol, mannitol, glycerol, sucrose, amino** acids and mixtures of **amino** acids in good yields from process solutions. This has previously been difficult with known methods using e.g. strongly acid cation exchange resins, zeolites or pyropolymers. The use of a weakly acid cation exchange resin makes it possible for effective separation by using water as an eluant. When water is used as the eluant, the handling is easier, the costs are lower and the safety is higher. Only one eluant, water, can be used efficiently for different **chromatographic** steps. By using a weakly acid cation exchange resin in the **chromatographic** separation, elution order of separation of carbohydrates is different, making it possible to efficiently recover other components besides carbohydrates, such as **betaine** and **amino** acids.

Dwg.0/5

L8 ANSWER 3 OF 13 WPIDS (C) 2002 THOMSON DERWENT

ACCESSION NUMBER: 2001-181507 [18] WPIDS
CROSS REFERENCE: 1997-450802 [42]; 1999-206997 [18]; 2000-255685 [19]
DOC. NO. CPI: C2001-054081
TITLE: Separation of several forms of isoflavone fractions involves subjecting a heated starting material to ultrafiltration to obtain permeate which is treated with an adsorptive material and eluting a isoflavone fraction with a solvent.
DERWENT CLASS: A97 D13 E13
INVENTOR(S): GRABIEL, R; GUGGER, E
PATENT ASSIGNEE(S): (ARCH) ARCHER-DANIELS MIDLAND CO
COUNTRY COUNT: 1
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
US 6171638	B1	20010109	(200118)*		15

APPLICATION DETAILS:

PATENT NO	KIND		APPLICATION	DATE
US 6171638	B1	Div ex	US 1996-614545	19960313
		CIP of	US 1997-868629	19970604

CIP of	US 1998-35588	19980305
	US 2000-478751	20000106

FILING DETAILS:

PATENT NO	KIND		PATENT NO
US 6171638	B1	Div ex	US 5702752
		CIP of	US 5792503
		CIP of	US 6033714

PRIORITY APPLN. INFO: US 2000-478751 20000106; US 1996-614545 19960313; US 1997-868629 19970604; US 1998-35588 19980305

AN 2001-181507 [18] WPIDS

CR 1997-450802 [42]; 1999-206997 [18]; 2000-255685 [19]

AB US 6171638 B UPAB: 20010924

NOVELTY - Separation of several forms of isoflavone fractions involves heating a starting material, subjecting the heated material to ultrafiltration to obtain a permeate which is then treated with an absorptive material, eluting at least one isoflavone fraction with an aqueous alcohol solvent, crystallizing and treating the fraction with a solvent and separating the fraction from the mixture.

DETAILED DESCRIPTION - Separation of several forms of isoflavone fractions containing at least one form of isoflavone in an aqueous starting material involves:

(1) heating the aqueous plant starting material to a constant temperature on a basis of an aqueous solubility for the isoflavone fraction that is to be recovered;

(2) passing the heated starting material through an ultrafiltration membrane to obtain a permeate. The membrane has a cut-off which passes through at least one isoflavone fraction;

(3) treating the permeate with an adsorptive material;

(4) washing the material in water;

(5) eluting the isoflavone fraction from the water-washed adsorptive material with an aqueous alcohol solvent to form a stream (preferably 1 - 20 wt.%);

(6) removing the aqueous alcohol from the stream to promote crystallization of the isoflavone fraction;

(7) drying the product to form dry particles;

(8) adding a solvent to the dried product to form a mixture; and

(9) separating the crystallized isoflavone fraction from the mixture to provide a product in a dry or liquid form.

INDEPENDENT CLAIMS are included for the following:

(a) the product made by the process

(b) the process of blending the product with a product selected from a group consisting of a food product, a food ingredient, a medical food or a dietary supplement.

USE - In the separation of isoflavone fractions. The isoflavones are useful in foods (preferably medical foods and dietary foods) (claimed) and beverages.

ADVANTAGE - The isoflavones produced by the inventive method prevent breast cancer. The method permits dry storage which smoothes production and enables sudden large orders to be filled quickly. Thus, quality control is made easier. The dry storage prevents the contamination of the product. The method also permits less equipment

usage since it is no longer necessary to have large batches of product sitting in expensive tanks.

DESCRIPTION OF DRAWING(S) - The Figure is a flow diagram representing one example of a manufacturing process.

Dwg.5/5

L8 ANSWER 4 OF 13 JAPIO COPYRIGHT 2002 JPO
ACCESSION NUMBER: 1999-221100 JAPIO
TITLE: PURIFICATION OF **BEET** SUGAR LIQUID
INVENTOR: TANIGAWA HIROHARU; ASAKAWA TOMOJI
PATENT ASSIGNEE(S): JAPAN ORGANO CO LTD
PATENT INFORMATION:

PATENT NO	KIND	DATE	ERA	MAIN IPC
JP 11221100	A	19990817	Heisei	C13D003-14

APPLICATION INFORMATION
STN FORMAT: JP 1998-37965 19980205
ORIGINAL: JP10037965 Heisei
PRIORITY APPLN. INFO.: JP 1998-37965 19980205
SOURCE: PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 1999

AN 1999-221100 JAPIO
AB PROBLEM TO BE SOLVED: To provide a method for purifying a **beet** sugar liquid in a large amount by which aminocarboxylic acids such as **amino** acids and betains are effectively removed while suppressing the conversion of **sucrose** to a low value by allowing the **beet** sugar liquid to flow through a porous strong-acid action exchange resin having a specific cross-linking degree and a weak basic anion exchange resin in order. SOLUTION: A **beet** sugar liquid is allowed to flow through a porous strong acidic cation exchange resin having a cross-linking degree of 10-15 wt.% **divinylbenzene** unit content, and a weak basic anion exchange resin in order to purify the **beet** sugar liquid in the method for purifying the **beet** sugar liquid. The **beet** sugar liquid is exemplified by the sugar liquid after softening or desalting by a **chromatographic** separation. Preferably, the **beet** sugar liquid is passed through a strong basic anion exchange resin and a weak acidic cation exchange resin in order as a pretreatment, and the obtained **beet** sugar liquid is passed through the before both ion exchange resins.
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L8 ANSWER 5 OF 13 CABA COPYRIGHT 2002 CABI
ACCESSION NUMBER: 97:97840 CABA
DOCUMENT NUMBER: 970307463
TITLE: A study of Donnan equilibria and selectivities of salt-sugar solutions for the desugarization of cane **molasses**
AUTHOR: Gupta, B.; Bhatt, S.; Shukla, R. P.
CORPORATE SOURCE: Organic Chemistry Division National Sugar Institute, Kanpur, India.
SOURCE: Taiwan Sugar, (1997) Vol. 44, No. 1, pp. 14-21. 8 ref.
ISSN: 0492-1712
DOCUMENT TYPE: Journal

LANGUAGE: English

AB With the eventual aim of applying ion-exclusion **chromatography** to separate sugars from cane **molasses**, Donnan (ion-exclusion) equilibria and selectivities of NaCl/dextrose/**sucrose** mixtures were studied at 30 deg C on strongly acidic cation-exchange resin (Dowex 50W) in a non-exchangeable (Na+) form, in relation to 6 variables: particle size and degree of crosslinking of the resin, feed volume and concentration of the feed, flow rate and temperature. Equilibrium curves indicated that an increase in feed volume (from 10 to 30% of bed volume) increased the yield of products per batch but decreased the recovery. A decrease in crosslinking of the resin (from 8 to 2% **divinylbenzene**) markedly improved the product separation but gave slightly diluted products, whereas a finer resin (100-200 mesh rather than 50-100) increased the purity and concentration of the products. Higher feed concentrations (30-40 deg Bx) increased the product concentrations but decreased their purities and recoveries. Higher flow rate resulted in worse separation (lower purity and product concentration) unless the column temperature was raised to 70 deg . Overall, NaCl-dextrose separations were better than NaCl-**sucrose** separations.

L8 ANSWER 6 OF 13 WPIDS (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: 1995-066318 [09] WPIDS
DOC. NO. NON-CPI: N1995-052707
DOC. NO. CPI: C1995-029301
TITLE: Sugar recovery from juices, **molasses**, syrups or liquors - by multi-stage process including exclusion **chromatography** to give sweeteners for food, pharmaceutical dairy or bottling industries.
DERWENT CLASS: D17 J01 S03
INVENTOR(S): CHEN, L F; RIMEDIO, N T
PATENT ASSIGNEE(S): (CHEN-I) CHEN L F; (RIME-I) RIMEDIO N T
COUNTRY COUNT: 1
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
US 5382294	A	19950117	(199509)*		25

APPLICATION DETAILS:

PATENT NO	KIND		APPLICATION	DATE
US 5382294	A	Cont of	US 1991-749667	19910826
			US 1993-98237	19930729

PRIORITY APPLN. INFO: US 1991-749667 19910826; US 1993-98237 19930729
AN 1995-066318 [09] WPIDS
AB US 5382294 A UPAB: 19950306
Inorganic/organic complexes colloidal materials and organic non-sugars are sepd. from juices, liquors, syrups and/or **molasses**, by size exclusion **chromatography**, into at least two fractions. Fraction (I) contains the high mol.wt. non-sugar components and fraction (II) contains sugar, including

sucrose, and soluble salts. The **chromatographic** separation medium (III) is porous cellulose, crosslinked agarose, crosslinked dextran, styrene/**divinylbenzene** copolymer, polyacrylamide, methacrylate polymer or controlled pore glass.Organic non-sugars, N-cpds. non-nitrogenous acids, waxes, sterols, phosphatides, gums, starches, pentosans,vitamins and inorganic/organic complexes are all in (I), while **sucrose**, glucose, fructose and soluble salts are in (II). The process comprises (i) diluting the feed with enough water to allow passage through (III); (ii) removing insolubles; (iii) passing the liq. through (III); and (iv) elution with water.

Process gives improved recovery of sugars.

Dwg.0/21

L8 ANSWER 7 OF 13 CABA COPYRIGHT 2002 CABI
ACCESSION NUMBER: 93:98559 CABA
DOCUMENT NUMBER: 930324142
TITLE: Applications of continuous **chromatographic** separation in the sugar industry. Part 2. Equilibria and separation of salt solutions
AUTHOR: Saska, M.; Mei Di Wu; Clarke, S. J.; Iqbal, K.; Mrini, M.; Wu, M. D.
CORPORATE SOURCE: Audubon Sugar Institute/Sugar Station, Louisiana State University Agricultural Center, Baton Rouge, LA 70803, USA.
SOURCE: International Sugar Journal, (1993) Vol. 95, No. 1132, pp. 137-143. 15 ref.
ISSN: 0020-8841
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Tests intended as background to the use of SMB (simulated moving bed) technology for separation of cane **molasses** components are reported. The sulphonated polystyrene/**divinylbenzene** cation-exchange resin Dow XUS-40166.00 in the K+-form was used for adsorptive separation of **sucrose**:KCl (3:1), clarified cane **molasses** (diluted to 8.8 deg Bx) and quaternary mixtures of **sucrose**, glucose, fructose and KCl, using 2 or 4 jacketed glass columns in series (parts of the 8-column SMB pilot plant at Audubon). Elution profiles are reproduced and discussed, and it is suggested that, for the purpose of tests on SMB separation, cane **molasses** solids may be modelled adequately by a 5-component mixture: 44% **sucrose**, 5% glucose, 8% fructose, 21.5% KCl and 21.5% of a non-retained component.

L8 ANSWER 8 OF 13 CABA COPYRIGHT 2002 CABI
ACCESSION NUMBER: 94:109616 CABA
DOCUMENT NUMBER: 940309394
TITLE: Separation of multi-components from **beet molasses** by simulated moving bed **chromatography**
AUTHOR: Inoue, M.; Fujisaki, H.; Kamata, T.; Kawamoto, T.; Sayama, K.
CORPORATE SOURCE: Research Center, Nippon Beet Sugar Mfg. Co. Ltd., 9-13 Inada-cho, Obihiro, Hokkaido 080, Japan.
SOURCE: Proceedings of the Research Society of Japan Sugar Refineries Technologists, (1993) Vol.

41, pp. 29-36. 1 tab., 14 fig.
ISSN: 0370-9841
DOCUMENT TYPE: Journal
LANGUAGE: Japanese
SUMMARY LANGUAGE: English

AB JO-type simulated moving bed **chromatography** (developed by Japan Organo Co. Ltd.) was applied to fractionation of **beet molasses**, using 12 11-litre columns of the cation-exchange resin Amberlite CG6000 (6% **divinylbenzene**, Na+-form); results obtained were compared with those of a conventional MCI system and an open column system. Among the 3 systems, the JO system gave the best separations of both raffinose and **sucrose**: raffinose recovery was approx equal to 70%, in fractions whose overall average purity (raffinose % solids) was approx equal to 70; **sucrose** recovery was >93%, in fractions with **sucrose** purity >85. The principle of the new JO system was as follows: The feed was introduced only once a cycle, whereas raffinose-rich and **betaine**-rich fractions (respectively A and C on graphs) were extracted continuously. The flow rate of each zone was controlled to prevent raffinose from overtaking **betaine**. The positions of feeding and extracting were shifted as in 2-component separation by simulated moving bed **chromatography**. The **sucrose** (B) fraction was extracted in the 1st step, only from the 12th (N method) or 11th (N-1 method) of 12 columns, and no extraction of C fraction was carried out in the 1st step.

L8 ANSWER 9 OF 13 CABA COPYRIGHT 2002 CABI
ACCESSION NUMBER: 92:138540 CABA
DOCUMENT NUMBER: 920313682
TITLE: Determination of volatile and non-volatile organic acids in technical sugar solutions by ion-exclusion **chromatography**
AUTHOR: Accorsi, C. A.; Blo, G.
CORPORATE SOURCE: Department of Chemistry, University of Ferrara, 44100 Ferrara, Italy.
SOURCE: Journal of Chromatography, (1991) Vol. 555, No. 1-2, pp. 65-71. 16 ref.
ISSN: 0021-9673
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Volatile and non-volatile organic acids in **beet** sugar process juices were separated by ion-exclusion **chromatography** on a Dionex Qic ion **chromatograph** with conductivity detector. The separation column was of H+-form Dionex HPICE-AS1, a totally sulphonated cation exchanger of polystyrene 9% crosslinked with **divinylbenzene**; eluents used were dilute HCl and solutions of tridecafluoroheptanoic acid in aqueous isopropanol. Detection was enhanced by inserting an anion-exchange micromembrane suppressor between column and detector; calibration for quantitative analysis used a multiple standard addition procedure. Citric, tartaric, gluconic, malic, lactic, glycolic, formic, acetic and pyrrolidonecarboxylic acids were revealed in the presence of inorganic acids and non-ionic organic compounds. The analysis is performed in the presence of **sucrose**, but **proteins** and cations are previously removed by rapid batch clean-up with H+-form strong cation exchanger (Amberlite IR-120). Co-elution of lactic acid with succinic acid and to some extent glycolic acid is noted; it is very rare for

beet process juices to contain any succinic acid or much glycolic acid, but significant amounts might arise via degradation of invert during processing of sugarcane juices.

L8 ANSWER 10 OF 13 WPIDS (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: 1986-117212 [18] WPIDS
DOC. NO. CPI: C1986-050092
TITLE: Sugar sepn. e.g. maltose from starch hydrolysate - by **chromatographing** sugar soln. with sodium type cation exchange resin.
DERWENT CLASS: A91 D17 E13
PATENT ASSIGNEE(S): (MITU) MITSUBISHI CHEM IND LTD
COUNTRY COUNT: 1
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
JP 61058600	A	19860325	(198618)*		6
JP 05002320	B	19930112	(199305)		6

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
JP 61058600	A	JP 1984-181231	19840830
JP 05002320	B	JP 1984-181231	19840830

FILING DETAILS:

PATENT NO	KIND		PATENT NO
JP 05002320	B	Based on	JP 61058600

PRIORITY APPLN. INFO: JP 1984-181231 19840830
AN 1986-117212 [18] WPIDS
AB JP 61058600 A UPAB: 19930922
Sepn. of sugars (I) from their mixt. (II), comprises **chromatographing** (II)-soln. with a Na-type cation exchange resin, while in contact with sodium ions.
The ion exchange resin is, e.g., of styrene-**divinyl benzene** copolymer having sulphonic acid gps. Sodium ion is added to the eluting solvent, or a soln. contg. sodium ions is flowed through the resin bed after (II)-soln. is flowed through the bed, so that sodium ions are not exhausted from the resin.
USE/ADVANTAGE - For isolating maltose from starch hydrolysate, **sucrose** from **molasses**, etc. Method prevents hydrolysis of part of (I) during **chromatographic** treatment.
0/2

L8 ANSWER 11 OF 13 WPIDS (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: 1982-04437J [48] WPIDS
TITLE: **Betaine** recovery from **molasses** - by applying dilute **molasses** to polystyrene sulphonate **chromatographic** column immersed in water, and eluting with water.
DERWENT CLASS: B03 B05 C03 D13 D17 E13 E16
INVENTOR(S): HEIKKILA, H O; MELAJA, J A; MILLNER, D E D;

VIRTANEN, J J
PATENT ASSIGNEE(S): (SUSO) SUOMEN SOKERI OY
COUNTRY COUNT: 1
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
US 4359430	A	19821116	(198248)*		20

PRIORITY APPLN. INFO: US 1980-125991 19800229; US 1981-237649 19810224
AN 1982-04437J [48] WPIDS
AB US 4359430 A UPAB: 19930915
Betaine (I) is recovered from **molasses** or invert **molasses** by diluting the (invert) **molasses** to 25-50% solids content and then uniformly supplying it to the top of a **chromatographic** column which is immersed in water, the column contg. uniformly sized particles of polystyrene sulphonate salt resin crosslinked with 2-12wt.% **divinylbenzene**, the particles having an ave. size of 20-400 US mesh. The column is then eluted with water, and a fraction consisting principally of (I) is recovered from the downstream side of the resin bed.

Pref. the diluted **molasses** is applied to the column at a flow rate of 0.5-2.0 cu.m per hr. per sq.m of column cross-section. The (I)-contg. fraction is the third fraction recovered, the first fraction being a waste fraction and the second fraction contg. a substantial proportion of the feed soln.

(I) is readily soluble in water, and is used in animal feeds, including feeds for cattle, pigs and birds. (I) also has pharmaceutical applications.

L8 ANSWER 12 OF 13 WPIDS (C) 2002 THOMSON DERWENT
ACCESSION NUMBER: 1981-51680D [29] WPIDS
TITLE: Recovering **betaine** from diluted **molasses** - by **chromatography** on crosslinked sulphonated polystyrene cation exchanger.
DERWENT CLASS: A96 B05 C03 D13 P11
INVENTOR(S): HEIKKILAE, H O; MELAJA, J A; MILLNER, D E D; VIRTANEN, J J
PATENT ASSIGNEE(S): (SUSO) SUOMEN SOKERI OY
COUNTRY COUNT: 18
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
BE 887652	A	19810615	(198129)*		52
WO 8102420	A	19810903	(198138)	EN	
RW: AT CH DE FR GB LU NL SE					
W: DK FI HU JP RO SU					
FI 8102912	A	19820226	(198212)		
JP 57500286	W	19820218	(198213)		
DK 8104532	A	19820315	(198214)		
EP 54544	A	19820630	(198227)	EN	
R: AT CH DE FR GB LI LU NL SE					
HU 26148	T	19830928	(198344)		

RO 84360	A	19840730 (198442)	
EP 54544	B	19850109 (198503)	EN
R: AT CH DE FR GB LI LU NL SE			
DE 3168098	G	19850221 (198509)	
SU 1189334	A	19851030 (198620)	
CS 8101434	A	19870917 (198742)	
IT 1170766	B	19870603 (198950)	
JP 02050895	B	19901105 (199048)	

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
EP 54544	A	EP 1981-900580	19810226
SU 1189334	A	SU 1981-3351601	19811013
JP 02050895	B	JP 1981-500795	19810226

PRIORITY APPLN. INFO: US 1980-125991 19800229; US 1981-237649 19810224

AN 1981-51680D [29] WPIDS

AB BE 887652 A UPAB: 19930915

Method for recovering **betaine** (I) from **molasses** (A) comprises first diluting (A) to solids content about 20-50% then applying to a column, flooded with water, of cross-linked polystyrene sulphonate cation-exchange resin (B). This is eluted with water to recover a (I)-rich fraction. (B) contains 2-12 wt.% divinylhenzene and consists of uniform particles of mean size 20-400 mesh (US Standard Sieve).

The (I)-contg. fraction is pref. to about 80% solids, then seeded and crystallised at 75-95 deg.C under vacuum. The resulting anhydrous (I) crystals are sepd. from the residual syrup which can be recycled to the diluted **molasses** feed.

(I) is a feed additive for cattle, pigs and poultry and is also used in pharmaceuticals.

ABEQ EP 54544 B UPAB: 19930915

A process for recovering **betaine** from **molasses** which comprises: (a) diluting the **molasses** to provide a diluted **molasses** having a solids content within the approximate range of 20-50%, (b) providing a **chromatographic** column of an alkali metal salt of a polystyrene sulphonate cation exchange resin cross-coupled with from 2 to 12 weight percent of **divinylbenzene**, the resin being of uniform particle size and having a mean particle size within the range of 0.84 to 0.037mm (20 to 400 U.S. mesh); (c) submerging the column of resin in water, (d) introducing the diluted **molasses** in uniform supply to the resin surface at the top of the column, (e) eluting the **molasses** from the column with water to provide an eluate, and (f) recovering from the downstream side of the resin bed a fraction which consists principally of **betaine**.

L8 ANSWER 13 OF 13 WPIDS (C) 2002 THOMSON DERWENT

ACCESSION NUMBER: 1979-41299B [22] WPIDS

TITLE: Sepg. raffinose from **beet molasses** - by ion-**chromatographic** sepn. in salt-type strong cation exchange resin, concn. of fractions and crystallisation.

DERWENT CLASS: D17 E13

PATENT ASSIGNEE(S): (NIPT) NIPPON TENSAI SEITO KK
COUNTRY COUNT: 1
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
JP 54049345	A	19790418	(197922)*		
JP 56039640	B	19810914	(198141)		

PRIORITY APPLN. INFO: JP 1977-115530 19770928
AN 1979-41299B [22] WPIDS
AB JP 54049345 A UPAB: 19930901
A method for prodn. of raffinose (I), by (1) ion-**chromatographic** sepn. of **beet molasses** (II) in salt-type strong cation exchange resin (III), (2) concn. of the fractions of the weight ratio of (I)/**sucrose** <2 and (3) crystallisation of (I) in the concentrate.

(I) of high purity can crystallise effectively. The crosslinking degree of (III) should be low and the content of **divinyl benzene** in (III) should be 4-8 wt.%.
Examples of the salt adsorbed to (III) are sodium, potassium, calcium and magnesium.

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